

**InterDigital®**

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SEP 27 1995

September 26, 1995

FCC MAIL ROOM

Mr. William F. Caton  
Acting Secretary  
Federal Communications Commission  
1919 M Street, NW - Room 222  
Washington, DC 20554

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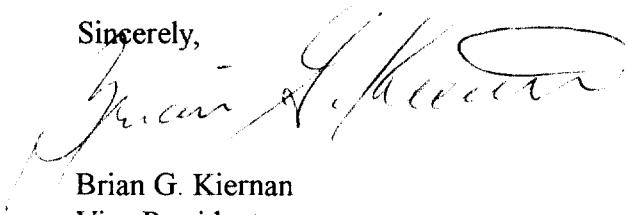
RE: **InterDigital Communications Corporation**  
**Comments in CC Docket No. 95-115**

Dear Mr. Caton:

Transmitted herewith are an original and 10 copies of the comments of InterDigital Communications Corporation in the above-referenced proceeding.

Please direct any inquiries regarding this matter to the undersigned.

Sincerely,

  
Brian G. Kiernan  
Vice President

BGK/pam

Enclosures

No. of Copies rec'd 0410  
List A B C D E

Before the  
**FEDERAL COMMUNICATIONS COMMISSION**  
Washington, D.C. 20554

In the Matter of )  
 )  
Amendment of the Commission's )  
Rules and Policies to Increase )  
Subscribership and Usage of the )  
Public Switched Network )

CC Docket No. 95-115

To: The Commission

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**COMMENTS OF INTERDIGITAL COMMUNICATIONS CORPORATION**

**I. INTRODUCTION**

InterDigital Communications Corporation ("InterDigital") respectfully submits these comments in the above captioned proceeding. InterDigital is a wireless technology manufacturer that has developed an advanced spectrum efficient digital radio system which is currently used to provide radio loops between telephone central offices and customer premises. The service, provided by local telephone companies, operates under the present FCC rules for Basic Exchange Telecommunications Radio Service (BETRS).<sup>1</sup>

InterDigital's radio system called the Ultraphone, is based on digital Time Division Multiple Access (TDMA) techniques which allow multiple users to simultaneously share a single narrowband radio channel. The Ultraphone is the most sophisticated radio system currently available to telephone companies for the provision of radio loops in rural areas within the United States. InterDigital is also developing a state-of-the-art wireless loop technology in alliance with

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<sup>1</sup>See 47 C.F.R. Section 22.600 -22.610 contains rules governing the licensing and operations of stations in the Rural Radio Service which includes Basic Exchange Telecommunications Radio Service (BETRS).

a major European manufacturer. This technology will be based on proprietary broadband CDMA technology and will be used to provide cost efficient radio-based local loop services throughout the world.

InterDigital, as the leading supplier in the United States of BETRS equipment to the telephone industry, has over ten years of direct experience in the engineering and installation of BETRS systems for telephone companies. The first BETRS system in the U.S. was installed by InterDigital in rural Wyoming in the Fall of 1986. Since then, hundreds of BETRS systems have been installed throughout the U.S., providing thousands of rural telephone households with direct access to the Public Switched Network through their local telephone company. Without the availability of BETRS technology, many of these customers would have been denied access to the telephone network.

## **II DISCUSSION**

In the Notice of Proposed Rule Making ("Notice") issued in the above-captioned proceeding, the Commission presents a series of initiatives aimed at increasing subscriber connection and reducing subscriber disconnection from the public switched network. In respect to remote and rural areas, the Commission is seeking information on ways wireless and cable TV technologies<sup>2</sup> could be used to extend access to the public switched network and further the goals of universal service.

Specifically, the Commission asks whether Basic Exchange Telecommunications Radio Service (BETRS) has provided assistance to companies in extending service in remote and rural areas. Further, the Commission is seeking information on the extent that fixed cellular service

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<sup>2</sup>Notice at 3.

has been implemented.<sup>3</sup>

**A. BETRS HAS BEEN HAMPERED BY A LACK OF ADEQUATE SPECTRUM AND BY THE INDIFFERENCE ON THE PART OF THE COMMISSION STAFF TO THE UNIQUE NEEDS OF BETRS.**

The justification for adequate spectrum for BETRS has been a matter of record before the FCC for nearly three years. On November 9, 1992, a Petition for Rulemaking ("Petition") asking for access to additional spectrum for the provision of BETRS was filed by the original BETRS petitioners. The Petition was jointly filed by the United States Telephone Association ("USTA"), the National Telephone Cooperative Association ("NCTA"), the Organization for the Protection and Advancement of Small Telephone Companies ("OPASTCO"), the National Rural Telephone Association ("NRTA") and the Rural Electrification Administration ("REA") (collectively "Petitioners").<sup>4</sup>

In that Petition, the Petitioners argued for co-primary sharing between BETRS and Air-to-Ground Radiotelephone Service of the 12 Air-to-Ground ("ATG") Radiotelephone channels immediately adjacent to the twenty-six 450 MHz channels that BETRS currently shares with other Part 22 licensees (predominately paging). The proposal put forth in the Petition establishes a geographical separation between BETRS and ATG systems sufficient to insure that that no interference to either BETRS or current ATG operation would occur.<sup>5</sup> Subsequent to the submission of the Petition, the FCC granted an experimental license to Vista Telephone Company

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<sup>3</sup>Notice at 17.

<sup>4</sup>Public Notice Report No. 1923 (RM-8159, released Jan. 8, 1993).

<sup>5</sup>Petition at Appendix A.

of Minnesota to operate on 3 ATG channels.<sup>6</sup> Vista selected these channels with sufficient geographical separation to permit interference-free operation. Since the authorization, Vista has provided interference-free radio loops in its service area on these ATG frequencies.

The need for additional spectrum for BETRS is critical. The Petitioners cite the success of BETRS to justify the added spectrum. They stated "Although the Commission provided adequate spectrum at 450 MHz to get BETRS started, a lack of usable spectrum now frustrates growth of the service."<sup>7</sup>

As pointed out by the petitioners, the lack of spectrum for BETRS not only curtails future installations but also seriously affects existing systems. Besides the BETRS systems that have never been built due to lack of available spectrum, there are dozens of existing BETRS systems that are cannot expand to provide basic telephone service to additional customers because of the lack of frequencies. Moreover, there are many opportunities where BETRS systems could provide quality telephone service with only a few frequencies which are not even taken to the planning stage because there is no clear path to the spectrum required for future growth.<sup>8</sup> As a result of this lack of spectrum, BETRS installations throughout rural America are being placed on hold awaiting spectrum relief.

The Commission's seeming indifference to the spectrum needs of BETRS, as evidenced by the two and a half year delay in addressing this Petition appears at odds with the objectives of the current Notice. BETRS has increased the subscriber connections to the public switched

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<sup>6</sup>Experimental authorization, file no. 4283-EX-PL-94 (granted May 31, 1994).

<sup>7</sup>Petition at 12.

<sup>8</sup>Petition at Appendix B.

network and advanced the goals of universal service. However, actions -- and in the case of the Petition -- inaction on the part of the Commission staff have been counter to these objectives.

In addition to this inaction on the Petition, the decreasing availability of 450 MHz channels for BETRS is also the direct result of Commission licensing of one-way pagers on these valuable two-way frequencies.

In CC Docket 87-120,<sup>9</sup> the FCC allowed paging companies to provide one-way paging on these 450 MHz two-way channels over the strenuous objections of the supporters of BETRS. For example, InterDigital (then IMM) suggested at that time that "...[T]he Commission should strive to accommodate the demand for one-way services without causing a de facto reallocation of two-way frequencies [450 MHz] that are critical to the operation of basic telephone service in non-urban areas."<sup>10</sup>

The Commission, however, acted counter to BETRS interests in that proceeding and opened up the 450 MHz two-way channels to unrestricted one-way use by paging companies. The licensing of paging systems, in rural areas, on the primary BETRS frequencies is a major factor in the current shortage of BETRS spectrum. The licensing of these systems hurts two-ways: (1) it reduces the availability of 450 MHz channels for BETRS; (2) it requires increased separation from existing and planned BETRS systems to avoid co-channel interference due to the high RF power used by rural paging systems.

Given the large number of radio channels available to the paging industry, unrestricted use of BETRS frequencies by pagers in rural locations is unsupported by any rational public

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<sup>9</sup>See First Report and Order, 4 FCC Rcd 1576 (1989).

<sup>10</sup>Comments of IMM Corp. at 19.

interest standard. Accordingly, heightened scrutiny on licensing additional paging systems in rural areas (especially where other paging channels are available) would appear to be a prudent public policy which would improve a deteriorating spectrum situation.

**B. THE USE OF CELLULAR SPECTRUM FOR BETRS IS NOT CONSISTENT WITH THE PROVISION OF BETRS BY LOCAL EXCHANGE CARRIERS**

In this Notice, the Commission, in the context of serving remote locations, asks for information on wireless technologies as surrogates for traditional wire loops: "In particular, we are interested in the extent to which fixed cellular service is being used for this purpose."<sup>11</sup>

Over 7 years experience with BETRS has shown that that cellular systems are not providing basic telephone service in rural areas. This experience provides ample evidence that rural cellular is not a remedy for the spectrum shortage faced by BETRS. In the original BETRS proceeding,<sup>12</sup> several participants provided comments to the Commission concerning the provision of BETRS by cellular. They predicted that cellular carriers would not offer BETRS service nor would telephone companies lease spectrum from cellular carriers. Time has proven them right.

For example, Boeing Corporation, in its comments to the Commission during the BETRS proceeding correctly identified the conflict between cellular and local exchange carriers regarding BETRS.

"...local exchange carriers (LECs) typically have an obligation to provide basic "plain old telephone service" (POTS) throughout their certificated exchange areas. They must therefore extend service to local subscribers even though the marginal costs to the LECs

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<sup>11</sup>Notice at 17.

<sup>12</sup>See Basic Exchange Telecommunications Radio Service, CC Docket No. 86-495, Report and Order, 3 FCC Rcd 214 (1988).

of such service far outstrips the revenue produced by providing that service. To compensate for this forced high cost service, the local exchange carriers are, of course, entitled to include these costs in their regulated rate base, and to recover an averaged rate of return over that base."

They went on to say:

"Since there are no subsidies flowing to a cellular carrier for serving unprofitable areas, there is also no incentive for carriers to serve these areas. In short, the cellular industry is structured to promote competition with traditional profit incentives. The local exchange industry, however, is structured to maximize the availability of basic telephone service."<sup>13</sup>

The confusion over cellular providing BETRS is furthered by the facile assumption that "fixed cellular" and "BETRS" are synonymous. That assumption is incorrect. While a cellular carrier can provide fixed service interconnected into the telephone network to a willing subscriber and charge whatever rate is appropriate to the situation, a local exchange carrier is under the jurisdiction of state utility commissions for the rates it charges.

Local exchange carriers normally provide telephone service on a state-wide averaged basis under tariffed rates approved by the state utility commission. Various Federal and explicit and implicit state subsidy mechanisms exist to assist rural telephone companies in keeping the costs of telephone service within reach of all subscribers. As a result, basic telephone service (BETRS or wireline) is normally priced below direct embedded cost.

In addition, the locations of most cellular systems do not correspond to the location of current or potential rural fixed radio-based subscribers. To maximize the profit potential of cellular radio, the rural cellular carriers place their systems where the highest concentration of

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<sup>13</sup>See Boeing Electronics Company ex parte presentation, CC Docket No. 86-495, (November 12, 1987).



people or vehicles exist -- normally towns and major highways. BETRS subscribers, on the other hand, usually reside where wired telephone service is either inadequate or nonexistent -- far from towns and highways.

BETRS and fixed cellular serve different needs. BETRS is an extension of the wire-based infrastructure of telephone companies. Its purpose is to lower the cost of loops and thereby drive down the overall average cost of telephone service. BETRS has the potential to help hold down local telephone rates, and reduce the subsidies required to ensure universal service at affordable rates.

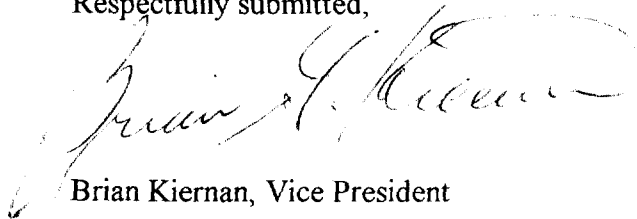
Some have proposed that Local Exchange Carriers lease cellular spectrum for the purpose of BETRS. This approach runs counter to the objective of reducing the overall cost of accessing the public network. The objective of achieving affordable rates is not enhanced by the addition of spectrum lease costs into the wire/radio formula. Further, the uncertainty of operating on another licensee's spectrum would "chill" the enthusiasm for a longterm radio-based solution to affordable basic telephone service.

### III CONCLUSION

If the Commission is truly concerned about universal service and extending subscribership to basic telephone service, the Commission should take immediate action on the BETRS/ATG sharing Petition to provide at least some limited spectrum relief for BETRS. Further, the Commission should heighten its scrutiny of rural paging license applications in the 450 MHz band. In this respect, a showing of no other available paging frequencies in the rural area should be a minimum threshold hurdle to be passed before the Commission considers granting pager access to the dwindling BETRS spectrum.

These actions would have the immediate and direct effect of increasing access to telephone service in rural areas, an objective shared by the telephone industry and the FCC.

Respectfully submitted,

A handwritten signature in cursive script, appearing to read "Brian Kiernan", is written over a horizontal line.

Brian Kiernan, Vice President

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